Monthly Progress Report
Corrective Measures Study (CMS) for Potential Release Site (PRS) 16-021(c)
June 1999

This memorandum summarizes Los Alamos National Laboratory (LANL) activities that were completed during June of FY 1999 on the CMS for PRS 16-021(c), the 260 outfall. Both the activities explicitly described in the CMS plan ([LAUR 98-3918)] submitted to the New Mexico Environment Department (NMED) on 9/30/98) and other related activities are described here.

Description of Activities and Contacts

RCRA Facility Investigation (RFI) Report and CMS Plan–LANL representatives resolved issues associated with Tables 6.1-1C, 6.1-1D and 2.4-16 in a series of phone calls with NMED representatives. Replacement pages of these tables for the April 1999 RSI response will be formally submitted to HRMB in early July 1999.

Best Management Practices (BMPs)–Existing BMPs were inspected and repaired. Following heavy rains during mid-June the outfall diversion pipe required repairs, which were performed. All of these BMPs are designed to further minimize run-on and runoff from the contaminated outfall area.

CMS Hydrogeologic Investigations–CMS hydrogeologic investigations include ongoing Phase II RFI sampling as well as initiation, at risk, of investigations outlined in the CMS plan.

The ongoing Phase II RFI sampling included sampling Sanitary Waste System Consolidation (SWSC), Burning Ground, and Martin Springs every other day for bromide, other anions, and stable isotopes. The results of June sampling are pending. No additional bromide breakthrough has been observed during the past few months. Wells, both alluvial and deep, were checked weekly for water level and presence of water. All five alluvial wells contained water. All three springs, five alluvial wells, and Peter Seep were all sampled during quarterly sampling that took place during the last week of June 1999.

Stable isotope investigations, as outlined in Section 6.2 of the CMS plan, were continued. All of the springs, alluvial wells, and surface water sampling locations were sampled for stable isotopes of oxygen and hydrogen during the quarterly sampling. A subset of these locations was also sampled for nitrogen isotopes. Additional stable isotope sampling locations included the headwaters of Canon de Valle, the confluence of Water Canyon/Canon de Valle, and the 90s Line Pond. Precipitation events were also sampled. Analyte suites for quarterly sampling included uranium and extended high explosives(HE) (including nitroglycerine).

Geomorphologic mapping in Canon de Valle and Martin Springs Canyon was initiated by the principal investigator, Steve Reneau of the Canyons Team. Mapping of the relevant reaches of Canon de Valle was completed, except for the area directly adjacent to MDA P, which is inaccessible during MDA P cleanup activities. Approximately 700 m of the western portion of Martin Spring Canyon were also mapped.

The Canyons Team demobilized from regional well R-25. There were significant difficulties completing this well. Inadequate completion of this well could significantly affect TA-16-260 CMS activities.

LANL personnel finalized a data quality objectives (DQO) memorandum concerning deep groundwater investigations and presented it to NMED representatives during a meeting on June 9, 1999. A follow-up meeting will occur on July 7, 1999.

Ecological Risk Pilot – The ecological risk team has been reviewing current literature that discusses combining different benchmark concentrations across chemicals of potential ecological concern.

CMS Bench and Pilot Studies–Bench and pilot studies continued in collaboration with the Innovative Treatment Remediation Demonstration (ITRD) program. The ITRD HE program is focused on two Department of Energy sites: LANL and Pantex. Four studies are ongoing under the auspices of ITRD, all of which may benefit the PRS 16-021(c) CMS: (1) A study of the passive barrier technology of Stormwater Management, Inc., which is potentially useful for removing HE and barium from waters. This study is being completed using water from Canon de Valle. (2) A study of chemical treatment of HE-contaminated soil using zero-valent iron (ZVI). This is being completed by the University of Nebraska/H&H Ecosystems using PRS 16-021(c) soil. This soil was taken from a moderately contaminated location within PRS 16-021(c) and does not constitute a RCRA-regulated hazardous waste (based on laboratory analysis). (3) A study of anaerobic *in-situ* bioremediation of HE using gas-phase carbon additions. This study is being completed by Idaho National Engineering and Environment Laboratory (INEEL) together with Texas Tech University using Pantex soil and a Pantex field site. (4) A study of *ex-situ* anaerobic bioremediation of Pantex soils using the W. R. Grace process, which combines anaerobic bioremediation with a ZVI treatment.

Regarding (1), following promising results from the Stormwater Management laboratory studies, a draft conceptual design for a pilot surface water treatment unit at Canon de Valle was completed.

Regarding (2), LANL completed logistics for the deployment of the University of Nebraska/H&H Ecosystems study of ZVI remediation in building TA-16-224. The LANL operating group (ESA-WMM) had previously required this study to be completed on-site rather than off-site by shipping soil to a vendor. Initiation of the study was slowed due to inappropriate electrical power in TA-16-224.

Regarding (3), no new results were received from the Pantex anaerobic in-situ bioremediation study

Regarding (4), no new results were received from the Pantex W. R. Grace process studies.

Interim Measure–Competitive bids for the Interim Measure were received in late May and a technical evaluation of them was initiated in early June. LANL hopes to award the IM contract during July.

Public and Stakeholder Involvement–LANL representatives participated in a poster session and briefing given to the public on June 8, 1999.

Percentage of CMS completed

LANL estimates that 20% of the CMS has been completed to date.

Problems Encountered/Actions to Rectify Problems

CMS Geohydrologic Investigations

Problem (1) ER Project Personnel are having difficulty installing flow-integrated samplers. Programming the new ISCOs for flow-integrated sampling is difficult.

Problem (2) The lack of a completed well at R-25 is of significant concern to the TA-16-260 team. A screen in the Westbay system was damaged.

Action to Rectify Problem (1) Dave Shaull of LANL group ESH-18 is finally available to help with installation of ISCOs. He should be available to consult on setting them up to perform flow-integrated sampling.

Action to Rectify Problem (2) The R-25 team will attempt to repair the damaged screen during July 1999.

CMS Bench and Pilot Studies

Problem (1) The on-site ZVI test of HE remediation of non-RCRA soils was delayed due to incorrect power supply in building TA-16-224. The engineering drawings for the facility indicated the availability of 220 VAC power; however, testing prior to deployment of the microenfractionater indicated that only 110 V is available.

Action to Rectify Problem (1) The power to TA-16-224 will be rewired to supply 220 VAC for the ZVI test. The rewiring should be completed by the second week of July.

Key Personnel Issues

There were no changes to the key personnel for the CMS project during this reporting period.

Projected Work for July 1999

RCRA Facility Investigation (RFI) Report and CMS Plan

- Submission of final replacement tables for the RFI report

Best Management Practices (BMPs)

- Inspection of existing BMPs following significant rain events

CMS Hydrogeologic Investigations

- Continued bromide sampling of springs
- Weekly checking for water levels and presence of water in alluvial and deep wells
- Deployment of flow-integrated ISCO samplers
- Completion of a stream profile for Canon De Valle
- Continued precipitation monitoring and sampling for stable isotopes
- Outfitting of the alluvial wells with transducers
- Completion of a geophysics study in Canon de Valle
- Continuation of Canyons-type "reach investigations" in Canon de Valle and Martin Spring Canyon, including sampling of trenches and floodplain deposits
- Finalization of the deep groundwater DQO memorandum in collaboration with HRMB

Ecological Risk Pilot

- Specific problem formulation for the aquatic and terrestrial endpoints in Canon de Valle (done by ecological risk team)

CMS Bench and Pilot Studies

- Initiation of ZVI pilot (pending rewiring at TA-16-224)

- Presentation of conceptual design for surface water treatment system to NMED representatives

***Interim Measure** (IM)*

- Awarding competitive contract for IM

Public and Stakeholder Involvement

- No public meetings or tours are anticipated for July 1999